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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/718,007 | 11/20/2003 | Alan Michael Jaffee | 7237 | 8750 |
| 7590 | 03/14/2006 | | EXAMINER | |
| Robert D. Touslee 10100 West Ute Avenue Littleton, CO 80127 | | | | TORRES VELAZQUEZ, NORCA LIZ |
| | | ART UNIT | PAPER NUMBER | 1771 |

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--|-------------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/718,007 | JAFFEE ET AL. | |
| | Examiner Norca L. Torres-Velazquez | Art Unit 1771 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 05 January 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 51-94 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 51-94 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed January 5, 2006 have been fully considered but they are not persuasive.

a. Applicants have amended the independent claims 51 and 91 to recite in the preamble that the claimed fibrous nonwoven mat has unique flame resistance and flex and recovery properties after scoring and folding; and to claim the percentage of the binder in the mat and to indicate that the mat passes the NFPA Method #701 flammability test. The Applicants argue that neither reference (Geel or Arkens), teaches that the nonwoven mats disclosed have excellent and unexpected flame resistance and flex and recovery properties after scoring and folding, or that any of the nonwoven mat would be useful in ceiling tiles or specialty products requiring such properties or that their mats pass the NFPA Method #701 Flammability Test.

With regards to the properties recitation added to the preamble, it is noted herein that the Examiner is not giving patentable weight to such recitation and it is further noted that, even if such recitation was part of the body of the claim, it is indefinite as not providing what are the "unique" flame resistance and flex recovery properties claimed. The claim is not providing any quantifiable measurement that will define such properties nor is giving any comparison as to what the improvement is when such properties are unique.

With regards to the claimed property of passing the NFPA Method #701 flammability test, it is the Examiner's position that one the Examiner's has meet all the structural and chemical properties of the nonwoven mat structure, the mat will inherently possess the claimed flammability property. It is also noted herein that the product

Applicants are claiming is a fibrous nonwoven mat, therefore, arguments referring to ceiling tiles are not relevant to the present invention.

b. Applicants argue that the secondary reference to Arkens et al., at col. 1, lines 22-25 teaches that their binder is for nonwovens composed of fiberglass or other heat resistant fibers. Applicants conclude that such teaching will lead one away from using the binder with polyester fibers.

It is first noted here that Arkens et al. teaches the use of their binder for heat-resistant nonwoven fabrics such as, for example, nonwovens which contain heat-resistant fibers such as for example, aramid fibers, certain polyester fibers, glass fibers, among others. By "heat-resistant fibers" is meant (in Arkens et al.), fibers which are substantially unaffected by exposure to temperatures above 125°C. (Refer to Col. 8, lines 23-31) It is further noted that the primary reference to Geel teaches that the polyethylene terephthalate fibers utilized in their invention have a melting point above about 250°C and maintain their fiber character to at least a temperature of 220°C. The reference also teaches that aramid or any other synthetic fiber meeting such requirement may be utilized. [0019]

The teachings of Arkens will not teach away from using Arkens' binder with polyester fibers since the polyester fibers of the primary reference (Geel), are heat-resistant fibers as shown above.

c. With regards to arguments indicating that the Geel does not teach a mat comprising 5-20% polymer fibers, it is noted that the broad teachings of the reference teach about 20 to about 90 percent by weight polyethylene terephthalate. (Refer to [0007],

[0016]) Therefore, it is the Examiner's position that the range taught by the reference overlaps the presently claimed range.

d. Applicants arguments regarding the inherency statement made by the Examiner with regards to the ratio of wet tensile strength to dry tensile strength are noted, however, it is noted herein that the inherency conclusion made by the Examiner is based on the structure produced from the combination of Geel and Arkens, and Applicants arguments are referring the reference of Geel solely. It is noted that "reliance upon inherency is not improper even though rejection is based on Section 103 instead of Section 102." *In re Skoner, et al.* (CCPA) 186 USPQ 80

e. Applicants indicated that the Examiner has not pointed out where Arkens et al. teach the binder as described in claims 53 and 54.

Applicants are directed to previous office action, which refers to Col. 6, lines 1-6 of Arkens et al. that teaches that the polyol may be triethanolamine.

f. It is finally noted that both references are analogous as both are directed to heat-resistant materials and are directed to nonwoven mats that comprise such heat-resistant fibers. The Examiner concludes that it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the mat of Geel and provide it with the binder composition of Arkens et al. motivated by the desire of producing a heat-resistant nonwoven material without formaldehyde as disclosed by Arkens et al. (Col. 1, lines 11-55). It is noted that formaldehyde is known to produce VOCs during production of nonwoven materials, by using Arkens et al.'s binder such health hazard is avoided.

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g. With regards to the nonstatutory double patenting rejection over Serial No. 10/717,802 in view of Geel, Applicants argue that the present claims cannot prevent the practice of the invention in the co-pending application because that invention does not require the use of polymer fibers in the mat as the present claims require. It is noted herein that the inclusion of polymer fibers is disclosed in the Specification of 10/717,802, which makes the interpretation of the transitional phrase “having” in the claims to be open-ended. [Refer to MPEP 2111.03] Therefore, the inclusion of synthetic fibers would have been an obvious modification in view of the teachings of Geel to produce the fibrous nonwoven mat of the present invention. The rejection is maintained herein.

h. New rejections over CHENOWETH et al. are included herein.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 51-94 are rejected under 35 U.S.C. 103(a) as being unpatentable over GEEL (US 2003/0109190 A1) in view of ARKENS et al. (US 5,661,213), and further evidenced by CHENOWETH et al. (US 4,888,235).

GEEL discloses a nonwoven reinforcing mat that includes a base web having about 10 to about 80 percent by weight glass fibers, about 20 to about 90 percent by weight polyethylene terephthalate fibers and binders. (Abstract) The reference uses polyethylene terephthalate

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(polyester) fibers as the polymer fibers with diameter of from about 6 to about 16 microns and a length of from about 4 to about 25 mm [0.15-0.98 inches]. (Refer to [0008]-[0009]) Geel teaches that the polyethylene terephthalate fibers utilized in their invention have a melting point above about 250°C and maintain their fiber character to at least a temperature of 220°C. The reference also teaches that aramid or any other synthetic fiber meeting such requirement may be utilized. [0019] The reference teaches the use of binders that may be self-crosslinking, non-crosslinking or crosslinked by addition of a suitable agent. [0021] The binder is in an amount of about 10 to about 30 percent of the total weight of the base web fibers and binder. [0017]

While the mat of GEEL provides the claimed fibers, the reference fails to use a binder that is at least partially cured and comprises before drying and curing a homopolymer or a copolymer of polyacrylic acid and a polyol.

ARKENS et al. relates to a formaldehyde-free curable aqueous composition containing a polyacid, a polyol and a phosphorus-containing accelerator. The composition may be used as a binder for heat resistant nonwovens such as nonwovens composed of fiberglass. (Abstract) Arkens et al. teaches the use of their binder for heat-resistant nonwoven fabrics such as, for example, nonwovens that contain heat-resistant fibers such as for example, aramid fibers, certain polyester fibers, glass fibers, among others. By "heat-resistant fibers" is meant (in Arkens et al.), fibers which are substantially unaffected by exposure to temperatures above 125°C. (Refer to Col. 8, lines 23-31) The reference teaches that the polyacid may be a compound with a molecular weight less than about 1000 bearing at least two carboxylic acid groups and teaches that it may be a polymeric acid that is preferably an addition polymer formed from at least one ethylenically unsaturated monomer (such as methacrylic acid, acrylic acid, among others). (Refer to Col. 3,

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lines 45 through Col. 4, lines 1-5) The reference further teaches that the polyol may be triethanolamine (Col. 6, lines 1-6) The formaldehyde-free curable aqueous composition may also contain emulsifiers, pigments, fillers, colorants, wetting agents (*equated to hydrophilic material*), among other components. (Refer to Col. 6, lines 52-57) The reference teaches a nonwoven substrate made from a fiberglass fiber at 1.25 inches in length with a binder add-on of 28%.
(Example 3)

Since both references are directed to heat-resistant materials and nonwoven mats comprising such heat-resistant fibers (aramid, polyester, glass fibers, etc.), the purpose disclosed by ARKENS et al. would have been recognized in the pertinent art of GEEL.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the mats of GEEL and provide them with the binder composition of ARKENS et al. with the motivation of producing a heat-resistant nonwovens without formaldehyde as disclosed by ARKENS et al. (Col. 1, lines 11-55).

Although the prior art of GEEL in combination with ARKENS does not explicitly teach the claimed ratio of wet tensile strength to dry tensile strength it is reasonable to presume that this property is inherent to a mat from the combination of GEEL and ARKENS. Support for said presumption is found in the use of like materials (i.e. nonwoven mat that includes glass fibers and polyester fibers, with a binder that prior to curing includes a polyacid and a polyol similar to the one claimed herein). The burden is upon Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed property of wet tensile strength/dry tensile strength would obviously have been present one the product form the combination of GEEL and ARKENS is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977) as to the

providing of this rejection made above under 35 USC 102. Reliance upon inherency is not improper even though rejection is based on Section 103 instead of Section 102. *In re Skoner, et al.* (CCPA) 186 USPQ 80

With regards to the claimed property of passing the NFPA Method #701 Flammability Test, it is the Examiner's position that such property will also be inherent to the structure from the combination of Geel and Arkens for the same reasons stated in the paragraph above. Applicant's ranges for the concentration of polyester fibers are broad and encompass typical values that are found in the prior art as evidenced by CHENOWETH et al. (Refer to Abstract and Table I). Since each of the elements are recognized as result effective variables in this field of endeavor and it has been held that discovering optimum values would have been or result effective variables involves only routine experimentation.

4. Claims 61-94 are rejected under 35 U.S.C. 103(a) as being unpatentable over CHENOWETH et al. (US 4,888,235) in view of ARKENS et al. (US 5,661,213).

CHENOWETH et al. discloses a nonwoven matrix of glass and synthetic fibers that provides a rigid but resilient product having good strength and insulating characteristics. The matrix consists of glass fibers and synthetic fibers such as polyester or aramid fibers combined with a thermosetting resin. (Abstract) The reference teaches using the nonwoven in applications such as sheets and panels as well as other thin-wall products such as insulation. (Col. 1, lines 19-22) The fiberized glass fibers have a diameter of three to ten microns. (Col. 2, lines 21-22) The length of the individual fibers 12 (glass fibers), may vary over a range of from approximately one half inch or less to approximately 3 inches. (Col. 3, lines 65-68) The reference also teaches that the loft/density of the blanket may be adjusted by appropriate

selection of the diameter and/or length of the synthetic, second fibers 14. Fiber in the range of 25 to 40 microns with one to four inches in length provide more loft to the blanket; whereas smaller and/or shorter fibers in the range from 10 to 25 microns and one quarter to one inch in length provide the final product having less loft and greater density. (Col. 4, lines 4-25) With regards to the percentage by weight of the fibers and binder in the final product, Table I shows, that preferred values are 50-75% glass fibers, 10-30% synthetic fibers and 9-25% thermosetting resin. (Refer to Col. 5) The thermosetting resin may be one of a broad range of general purpose, engineering or specialty thermosetting resins. (Col. 4, lines 37-45)

While the product of CHENOWETH provides the claimed fibers and a thermosetting binder, the reference fails to specify that the binder is at least partially cured and comprises before drying and curing a homopolymer or a copolymer of polyacrylic acid and a polyol.

ARKENS et al. relates to a formaldehyde-free curable aqueous composition containing a polyacid, a polyol and a phosphorus-containing accelerator. The composition may be used as a binder for heat resistant nonwovens such as nonwovens composed of fiberglass. (Abstract) Arkens et al. teaches the use of their binder for heat-resistant nonwoven fabrics such as, for example, nonwovens that contain heat-resistant fibers such as for example, aramid fibers, certain polyester fibers, glass fibers, among others. By "heat-resistant fibers" is meant (in Arkens et al.), fibers which are substantially unaffected by exposure to temperatures above 125°C. (Refer to Col. 8, lines 23-31) The reference teaches that the polyacid may be a compound with a molecular weight less than about 1000 bearing at least two carboxylic acid groups and teaches that it may be a polymeric acid that is preferably an addition polymer formed from at least one ethylenically unsaturated monomer (such as methacrylic acid, acrylic acid, among others). (Refer to Col. 3,

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lines 45 through Col. 4, lines 1-5) The reference further teaches that the polyol may be triethanolamine (Col. 6, lines 1-6) The formaldehyde-free curable aqueous composition may also contain emulsifiers, pigments, fillers, colorants, wetting agents (*equated to hydrophilic material*), among other components. (Refer to Col. 6, lines 52-57) The reference teaches a nonwoven substrate made from a fiberglass fiber at 1.25 inches in length with a binder add-on of 28%. (Example 3)

Since both references are directed to useful in insulation applications the purpose disclosed by ARKENS et al. would have been recognized in the pertinent art of CHENOWETH.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the binder of CHENOWETH and provide them with the binder composition of ARKENS et al. with the motivation of producing a heat-resistant nonwovens without formaldehyde as disclosed by ARKENS et al. (Col. 1, lines 11-55).

Although the prior art of CHENOWETH in combination with ARKENS does not explicitly teach the claimed ratio of wet tensile strength to dry tensile strength it is reasonable to presume that this property is inherent to a mat from the combination of CHENOWETH and ARKENS. Support for said presumption is found in the use of like materials (i.e. nonwoven mat that includes glass fibers and polyester fibers, with a binder that prior to curing includes a polyacid and a polyol similar to the one claimed herein). The burden is upon Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed property of wet tensile strength/dry tensile strength would obviously have been present one the product form the combination of CHENOWETH and ARKENS is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection made above under 35 USC 102.

Reliance upon inherency is not improper even though rejection is based on Section 103 instead of Section 102. *In re Skoner, et al.* (CCPA) 186 USPQ 80

With regards to the claimed property of passing the NFPA Method #701 Flammability Test, it is the Examiner's position that such property will also be inherent to the structure from the combination of Chenoweth and Arkens for the same reasons stated in the paragraph above.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 51-94 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 62-95 of copending Application No. 10/717,802 in view of GEEL (US 2003/0109190 A1). The claims of the copending application fail to teach the inclusion of man-made polymer fibers as a blend with glass fibers. GEEL discloses a nonwoven reinforcing mat that includes a base web having about 10 to about 80 percent by weight glass fibers, about 20 to about 90 percent by weight polyethylene terephthalate fibers and binders. (Abstract) The reference uses polyethylene terephthalate (polyester) fibers as the polymer fibers with diameter of from about 6 to about 16

microns and a length of from about 4 to about 25 mm [*0.15-0.98 inches*]. (Refer to [0008]-[0009]) It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the polymer fibers with the motivation of improving the tear strength, improved resistance against moisture and rot as disclosed by GEEL. [0015]

This is a provisional obviousness-type double patenting rejection.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Norca L. Torres-Velazquez whose telephone number is 571-272-1484. The examiner can normally be reached on Monday-Thursday 8:00-5:00 pm and alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Norca L. Torres-Velazquez
Primary Examiner
Art Unit 1771

March 9, 2006